UNITED STATES PATENT AND TRADEMARK OFFICE

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10/624,471	07/23/2003	Laura Hadden	71493-1165 /aba	7439

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EXAMINER
LI, SHI K

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2008*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30 and 34-36* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-30 and 34-36* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-3, 5-17, 20, 24-26, 28 and 34-36 are rejected under 35 U.S.C. 102(e) as being

anticipated by Levandovsky et al. (U.S. Patent 7,095,956 B2).

Regarding claims 1-3 and 24-25, Levandovsky et al. teaches in FIG. 2 path validation

unit 200. Levandovsky et al. teaches in col. 3, lines 49-60 that noise is an optical effect that

impacts the viability of the signal path. Levandovsky et al. teaches in col. 23, line 24 that noise

depends on passive fiber and active optical amplifier. Levandovsky et al. teaches in col. 23, line

25 to approximate the impact by using noise figure and teaches in col. 4, lines 24 that $SNR_k =$

NF_k/SNR_o. Levandovsky et al. teaches calculating noise figure for each chain of k elements

(e.g., k segment of fiber). Finally Levandovsky et al. teaches in FIG. 4 to compare the SNR and

bit error rate for the path with a range for determining the path's viability.

Regarding claims 5-6 and 8, Levandovsky et al. teaches in col. 17 fiber type. The fiber

between two nodes is a segment and a segment comprises spans.

Regarding claim 7, Levandovsky et al. teaches in col. 17 number of wavelengths and in

col. 19 cross-talk.

Regarding claims 9-13, Levandovsky et al. teaches in col. 21 dispersion, cross-phase modulation, four-wave mixing. Levandovsky et al. teaches in col. 15 self-phase modulation.

Regarding claims 14-17, Levandovsky et al. teaches in col. 21 stimulated Brillouin scattering and stimulated Raman scattering, and in col. 23 amplified spontaneous emission.

Regarding claim 20, Levandovsky et al. teaches in col. 19 bit error rate.

Regarding claims 26 and 28, Levandovsky et al. teaches in col. 5, lines 40-45 calculating noise figure at each NE on a path route using cumulative noise-related information received from a previous element on the path.

Regarding claims 34-36, Levandovsky et al. teaches in col. 3, lines 44-45 software residing in a memory

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levandovsky et al. (U.S. Patent 7,095,956 B2) in view of Solheim et al. (U.S. Patent 7,190,902 B2).

Levandovsky et al. has been discussed above in regard to claims 1-3, 5-17, 20, 24-26, 28 and 34-36. The difference between Levandovsky et al. and the claimed invention is that Levandovsky et al. does not teach use measured data in place of estimated data. Solheim et al. teaches in col. 4, lines 55-63 that use of measured as opposed to estimated data might increase the network deployed reach by 50%. One of ordinary skill in the art would have been motivated

to combine the teaching of Solheim et al. with the path validation method of Levandovsky et al. and use measured data, whenever available, in place of estimated data because measured data is more reliable than estimated data. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use measured as opposed to estimated data whenever measured data is available, as taught by Solheim et al., in the path validation method of Levandovsky et al. because measured data is more reliable than estimated data.

5.   Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levandovsky et al. (U.S. Patent 7,095,956 B2) in view of Bickham et al. (U.S. Patent 6,943,935 B2).

Levandovsky et al. has been discussed above in regard to claims 1-3, 5-17, 20, 24-26, 28 and 34-36. The difference between Levandovsky et al. and the claimed invention is that Levandovsky et al. does not mention multi-path interference (MPI). However, Bickham et al. teaches in col. 2, lines 5-14 that MPI is inherently generated by double-Rayleigh back-scattering and Rayleigh back-scattering of amplified spontaneous emission in Raman amplification. One of ordinary skill in the art would have been motivated to combine the teaching of Bickham et al. with the path validation method of Levandovsky et al. because MPI affects signal quality. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to take MPI into consideration, as taught by Bickham et al., in the path validation method of Levandovsky et al. because MPI affects signal quality.

6.   Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levandovsky et al. (U.S. Patent 7,095,956 B2) in view of Denkin et al. (U.S. Patent 6,980,740 B1).

Levandovsky et al. has been discussed above in regard to claims 1-3, 5-17, 20, 24-26, 28 and 34-36. The difference between Levandovsky et al. and the claimed invention is that

Levandovsky et al. does not teach linear approximated function. However, linear functions are

one of the simplest functions that are used in calculation. Denkin et al. teaches in col. 1, lines

26-30 that the effect of Ramon scattering is approximately linear. One of ordinary skill in the art

would have been motivated to combine the teaching of Denkin et al. with the path validation

method of Levandovsky et al. because linear function is simple and easy for calculation. Thus it

would have been obvious to one of ordinary skill in the art at the time the invention was made to

use linear approximated function, as taught by Denkin et al., for calculating the effect of Raman

scattering in the path validation method of Levandovsky et al. because linear function is simple

and easy for calculation.

7.   Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Levandovsky et al. (U.S. Patent 7,095,956 B2).

        Levandovsky et al. has been discussed above in regard to claims 1-3, 5-17, 20, 24-26, 28

and 34-36. Regarding claims 21-23, Levandovsky et al. either teach signal-to-noise ratio, Q and

penalty points or they are common performance measurements that are well known to one of

ordinary skill in the art. Thus it would have been obvious to one of ordinary skill in the art at the

time the invention was made to use signal-to-noise ratio, Q or penalty points for performance

measurement because they are well known in the art and their use would have yield predictable

results to one of ordinary skill in the art at the time of the invention.

8.   Claims 27 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Levandovsky et al. (U.S. Patent 7,095,956 B2) in view of Beine et al. (U.S. Patent 6,701,087

B2).

Levandovsky et al. has been discussed above in regard to claims 1-3, 5-17, 20, 24-26, 28 and 34-36. Levandovsky et al. teaches in col. 5, lines 30-40 that the transmission of cumulative noise-related information is via signaling protocols similar to RSVP or CR-LDP. It is well known in the art that RSVP or CR-LDP is conveyed using OSC. Therefore, either Levandovsky et al. suggests using OSC for communicating performance value or it is obvious to use OSC for communicating performance value. Furthermore, Examiner cites Beine et al. for teaching communicating parameters via an OSC channel (col. 25, lines 49-50). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use OSC for communicating performance parameters, as taught by Beine et al., in the path validation method of Levandovsky et al. because using OSC for such purpose is well known in the art and its use would have yield predictable results to one of ordinary skill in the art at the time of the invention.

Response to Arguments

9.   Applicant's arguments filed 6 March 2008 have been fully considered but they are not persuasive.

The Applicant argues "the limitation of 'identifying at least one base variable upon which the identified optical effects depend' is not taught by Levandovsky, and the Examiner has not referenced this limitation anywhere in the present Office Action." The Examiner disagrees. Instant Office Action and previous Office Action state in the rejection "Levandovsky et al. teaches in col. 3, lines 49-60 that noise is an optical effect that impacts the viability of the signal path. Levandovsky et al. teaches in col. 23, line 24 that noise depends on passive fiber and active optical amplifier." In other words, Levandovsky et al. identifies two base variables,

namely, passive fiber and active optical amplifier, upon which the identified optical effect, i.e.,

noise, depends.

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The

examiner can normally be reached on Monday-Friday (7:30 a.m. - 4:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

skl
17 June 2008

/Shi K. Li/
Primary Examiner, Art Unit 2613